BITS

computing&communications news
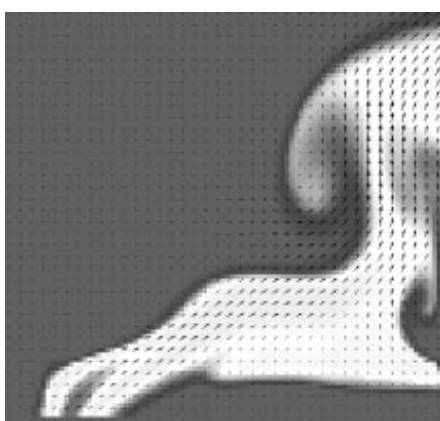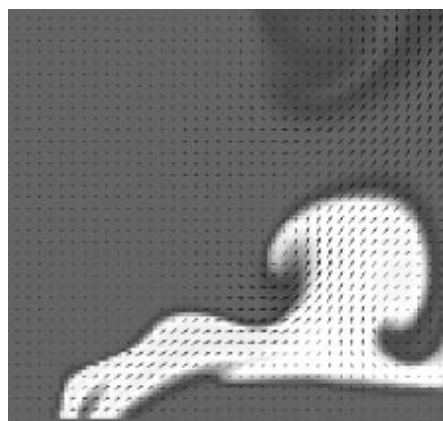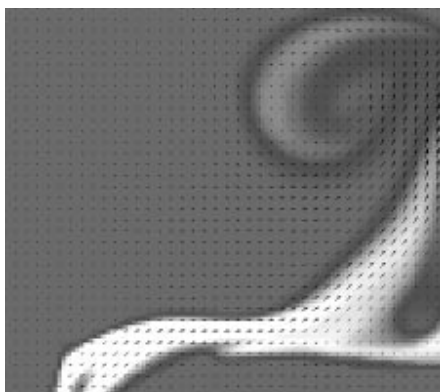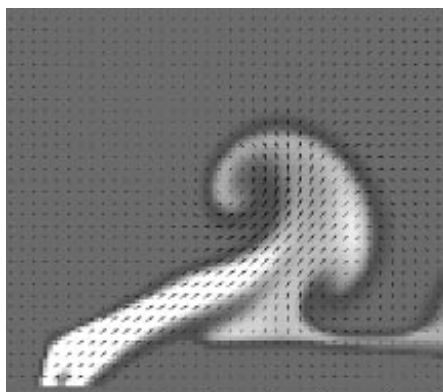
A major thrust at the Advanced Computing Laboratory is to apply the awesome power of modern computers to problems of crisis response. By calculating the unfolding of crisis events through computer simulation, emergency response personnel can explore avenues for remediation and select strategies for implementation in a timely fashion. One area of research at Los Alamos is the simulation of wildfire propagation. Developed by R. Linn and F. Harlow of the Theoretical Division under CIC auspices, the wildfire simulation combines fire dynamics with mesoscale meteorological evolution in a code that is optimally efficient as well as self-assessing and self-adjusting. The illustrations depict the early development of a fire configuration in 10 second intervals, from 100 to 130 seconds after an intense ignition. Temperatures range from 300º k (darkest shade) to 575º k (lightest shade).

Inside this issue

CIC Customer Service Center . . . . (505) 665-4444
or cichelp@lanl.gov

Integrated Computing Network (ICN)
Consulting:

Centralized scientific and engineering computing .....consult@lanl.gov or 7-5746

Lab-wide administrative and business systems ....labwide@lanl.gov or 7-9444

Passwords (required for access to ICN) ....validate@lanl.gov or 5-1805

Central Computing Facility (CCF) 7-4584

Advanced Computing Laboratory (ACL) 5-4530

Desktop Support Center (DSC) 7-4357 (7-HELP)
For PC questions: PC-help@lanl.gov or 7-9372

For Macintosh questions: Mac-help@lanl.gov or 5-1361

For UNIX questions: UNIX-help@lanl.gov or 5-2220

For groups with CIC-2 support contracts: 5-2220

Telephone Services Center 7-3400
(includes voice mail)

Computer training
Lab-wide systems support training..7-9444

Computer/workstation training 7-9399

Personal computer training 7-9071

Microcomputer support facility seminars...7-4357
(Macintosh/IBM software, lending library)

List of Forms

Announcing a Special Edition of BITS: Introduction to Computing at Los Alamos

If you are a new employee or contractor at LANL, or just new to the LANL computing environment, it may seem like you have a lot to learn and do before you can begin using a computer. If you are an experienced computer user, it may be easier, but there will still be some areas of knowledge or expertise that you will need. Even if you are an experienced LANL computer user, there may still be some areas of knowledge or expertise that you would like to acquire. Becoming productive within the LANL computing environment is not always easy and straightforward. To improve this situation, the Customer Service Group (CIC-6) has created a special edition of BITS called Introduction to Computing at Los Alamos. This special edition will be available in time for the influx of summer computer users that traditionally arrive during May and June. Subsequent editions of special BITS will be updated and reprinted as necessary to better meet the needs of computer users at Los Alamos.

Contents of Special BITS

The contents of this special issue will address six areas of computing that are of primary interest to computer users at Los Alamos.

Section 1: Introductory information to help you establish terminology, determine networking requirements, understand your computer security responsibilities, and locate supporting resources such as the various help desk organizations.

Section 2: Desktop hardware and software support information, including instructions on how to acquire and configure software. Most users, particularly those who use business systems, should refer to this section.

Section 3: Information needed to work within the Integrated Computing Network (ICN) environment, including instructions on how to use the validation, registration, authentication, and charging mechanisms. Most scientific computing users and those who have explicit networking needs should refer to this section.

Section 4: Information needed to use the common computing resources at Los Alamos. If you have storage or printing needs, you will find this information helpful.

Section 5: An introduction to the use of Lab-wide business systems.

Section 6: An introduction to the use of scientific computing resources.

New Users Training

Starting in May, CIC-6 will begin sponsoring introductory classes for LANL computer users. These classes will use the special BITS issue as a source text and everyone in the class will receive a copy. Sessions for May are scheduled as follows:

• Wed., May 15   1:30-3:00 p.m.

• Fri., May 17   9:00-10:30 a.m.

• Wed., May 22   9:00-10:30 a.m.

• Thur., May 30   9:00-10:30 a.m.

The schedule for June will be announced at a later date. For more information contact the CIC-6 Training Team at 667-9559.

Distribution of Special BITS

Also starting in May, CIC-6 will distribute a hard copy of special BITS to all new LANL employees and contractors. We will also offer a copy to all users who renew their ICN password. All other on-site LANL computer users can receive a copy by calling 667-9955. A voice mail will ask for your name and mail stop. Simply provide this information and a copy will be mailed to you. If you are an off-site LANL computer user and would like a copy, contact Mike Finney by e-mail or phone (shown below). Of course this special edition of BITS will also be available on-line and we will announce its Web location as soon as the on-line version is in place.

Mike Finney, finney@lanl.gov, (505) 667-2241
Communications Arts and Services (CIC-1)

Cray Programming Environment 2.0 Tools

This article is the last in a series about the Cray Programming Environment 2.0 and will focus on the tools which complement the C/C++ and Fortran 90 compilers. The tools are ATExpert, Program Browser xbrowse, cflist, cflint, libcif, and the TotalView debugger. Since the changes in some of these tools are probably insignificant for most programmers, only those that are felt to be of interest to LANL users will be mentioned in this article. Certainly the greatest number of changes have been made in the TotalView debugger; many of these changes were a direct result of a series of meetings between representatives of Cray and LANL.

TotalView
TotalView 2.0 enhancements include the following:

• New GUI interface with an emphasis on increased stability and usability. Motif style menus were added across the top of all windows. The Process Window was redesigned, so that by default, only one process window will be displayed at a time. A Command Window was added to output informational messages from TotalView.

• A "print" command and button has been added to print the value of a variable or expression.

• Line mode. A line mode interface was added to support a commands-only mode; in line mode there is no graphical interface. Command syntax is dbx-based.

• Support for breakpoints within autotasked parallel regions has been added. The parallel region may have three addresses associated with it: a unitasked address, a master address, and a slave address.

• Process sets (Psets) are introduced with TotalView 2.0. Psets are a collection of processors that are treated as a unit during debugging. Debugging commands will act on the processors defined in the current Pset. With 2.0, two Psets are defined, "single" or "all" ("all" is the default). If Pset is defined as all, the next command will advance all processors to the next source line. If Pset is defined as single, the next command will advance only the specified processor to the next source line.

• Process status information has been improved. Buttons have been added to the interface to collapse or expand the amount of processor information that is shown in the TotalView window.

• Private data improvements. Private data values across all processors can be displayed on the data window. PE input box supports access to private data on all processors. Access to private array data is available through the Data Matrix window.

Debug Symbol Tables Availability
This feature allows debug symbol tables to be generated (-G1) even when autotasking is enabled (-O3). Autotasked parallel regions generate three breakpoint addresses: (1) the unitasked address, (2) the master address, and (3) a slave address. This multi-address breakpoint scheme is already handled in the symbol tables for hand-tasked regions via the slave descriptor section and task labels in the unnamed labels section.

CrayTools Features
In direct response to customer requests solicited at recent Cray User Group meetings, the following graphical user interface tools now have release information text files provided under their HELP menu: PVP Performance Tools, TotalView, and xbrowse. These files contain information regarding new features in the release, outstanding problems in the release, and last minute notes about the release.

CrayTools Differences
The Programming Environment 2.0 release is the last major release to support the UNICOS CDBX symbolic debugger. Moreover, the UNICOS CDBX Symbolic Debugger is not supported on the CRAY T90 or the CRAY T3D series systems; the Cray TotalView debugger does provide debugging support on these systems.

CrayLibs
Libsci now supports most of the eigenvalue and singular value routines from LAPACK.

Errata
In our March 1996 BITS article, we stated that the Cray Programming Environment 2.0 had been released on February 15, 1996. We should have qualified that statement by including the phrase "for Cray PVP platforms." More specifically, the Cray CF90 2.0 product for SPARC platforms has not been released, but we anticipate its release in late summer 1996. We apologize for any confusion.

This completes our series of articles on the Cray Programming Environment 2.0. We express our appreciation to those users who have given us feedback and asked questions about Programming Environment 2.0.

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Distributed Computing (CIC-8)

Mathematical Reviews Available On-line through the Research Library Web Page

An excellent resource for mathematics and related research is now available at your desktop. The MathSciNet database covers research in mathematics and mathematically related research in statistics, computer science, physics, operations research, engineering biology, and other disciplines. You can access MathSciNet by pointing your browser at

http://e-math.ams.org:80/msnprhtml/review_search.html

MathSciNet indexes over 2,000 journals, books, conference proceedings, and published dissertations. It allows access to over 55 years of back issues for the popular reference guides Mathematical Reviews and Current Mathematical Publications.

Mathematical Reviews is available from 1940 to the present with full text reviews available from 1980 to the present. Mathematical Reviews is the premiere journal for reviews and abstracts of published mathematical research literature. Reviewers are assigned from among 12,000 mathematicians around the world. Over 47,000 reviews or abstracts are published each year.

Current Mathematical Publications is the corresponding current awareness journal. By publishing a new issue every three weeks and new bibliographic records, which appear daily on MathSciNet, Current Mathematical Publications provides a timely subject index of recent and forthcoming mathematical publications. Articles are selected and classified by the editors of Mathematical Reviews according to the 1991 Mathematics Subject Classification scheme. Most of the articles in Current Mathematical Publications are reviewed later in Mathematical Reviews.

MathSciNet is updated daily. A variety of available file formats present true mathematical symbols on screen. Many hypertext links facilitate the searching process. A simple click on the link takes you to other cited reviews. A simple click will also provide you with a list of other works by the author (accounting for all variations of the author's name). Links to the Combined Membership List (a listing of all the members of various mathematical societies such as SIAM, AMS, MAA, and AMATYC) allow you to retrieve an author's current address.

The Research Library purchased an on-line subscription to MathSciNet from the American Mathematical Society because of all the positive customer feedback received during the trial access this past fall. Access is restricted to Los Alamos National Laboratory employees and contractors.

The Research Library's subscription to MathSciNet on CD-ROM and Mathematical Reviews in hard copy will not be renewed in 1996.

You can also access MathSciNet through the Research Library Home page (http://lib-www.lanl.gov) by selecting "Electronic Databases." MathSciNet is available under "Databases Outside the Research Library System."

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Librarian/Research Library (CIC-14)

Statistics on Network and Telephone Services at LANL

Network Facts

• Each day the LANL Open e-mail routing server (aka Mailhost or "lanl.gov") processes about 30,000 e-mail messages and delivers them to 75,000 destinations. About 20,000 of these messages are generated internally.

• Each day the LANL network backbone carries 80 to 100 gigabytes. This is an increase of 25% from the daily average in March 1995. Traffic to and from the Internet is also up 25% and currently averages 10 gigabytes per day. During normal working hours, 75% of the Internet traffic to and from the Lab is World Wide Web (http).

• Our busiest peak hour of backbone traffic (one FDDI interface) used only 10% of our capacity. The current backbone configuration can sustain 400 gigabytes per hour, which can be increased by a factor of 3 if we increase the number of ports on the backbone FDDI switches (gigaswitches).

• Our busiest router interface, the Integrated Computing Network (ICN), carries 35 gigabytes per day. This is up 15% from last year. (Services within the ICN include CFS, ADSM, NFS, WWW, and Mail.)

Phone Facts

• Number of Phones in service: 16,800

• Average number of phone calls placed (internal and external) by LANL per month: 2,800,000

• Average number of phone calls received by LANL per month: 600,000

• Average number of phone calls placed (external) by LANL per month: 750,000

• Average number of minutes for long distance via FTS per month: 630,000

• Average number of minutes for dial-in data (local and 1-800) per month: 1,080,000

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Network Group (CIC-5)

Copyright and the World Wide Web

If you are aware of copyright issues and go out browsing the Web, two things repeatedly stand out. First, a number of people refer to copyrights over and again; and second, many of the same people—plus many others—blatantly disregard the law. It's probably not a matter of deliberate violations (the issues are, after all, often complex), but the violations occur nonetheless.

There have been several fundamental changes in U.S. copyright law during the past decade. Much of what some of us had taken for granted as "the law" isn't what it used to be. And the changes have a significant impact on the way we should build and use the Web. This article is written to provide practical suggestions; legal advice is available from Laboratory Counsel/Business and Patent Law (LC/BPL).

One big change came in 1988 when the U.S. subscribed to the Berne Convention, a century-old international agreement about copyright law. Its most obvious effect on U.S. law is that materials no longer need a copyright notice to be protected—copyright takes effect as soon as something is "fixed" in any medium, whether that be print, electronic, film, whatever.

A second big change came in 1993 with the introduction of the first graphical World Wide Web browser (NCSA Mosaic), which dramatically increased our access to and sharing of electronic information. In the past, if we wanted to take information from another's work, we needed to perform a conscious act of copying—retyping, making a photocopy, etc. Now, however, we can simply cut and paste, which is good in terms of convenience, speed, and productivity, but not so good in terms of forcing us to remain alert to copyright issues. It's easy—sometimes too easy—to just forget.

What Is Copyright?

Copyright is basically an author's right to control the reproduction, performance, and display of (and make a profit from) his or her work. This applies most obviously to written works (at least from my perspective), but it also extends to artwork, movies, music, animations—"every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression" (Berne Convention, Article 2). E-mail is covered by copyright, too.

In a "work for hire" arrangement (i.e., if you create something in the course of your employment), the employer owns the copyright. Hence, in most cases, the University of California owns the copyright to materials created here at the Laboratory.

In certain cases, however, U.C. transfers the copyright to the author, DOE, a CRADA partner, or another. For example, for scientific papers, U.C. policy transfers the copyright to the author, so that the author can then grant publication rights to a professional journal or other publisher.

Among the rights protected by copyright are the rights to publish, reproduce, translate, broadcast, perform, recite, adapt, and more. An exception to the rights granted to the copyright owner is the concept of "fair use."

The Rights to Publish and Reproduce, and "Fair Use"

First, whenever anything is posted to the open Web, it is "published" in the eyes of the law. For starters, this means that everything you find on the Web is protected by copyright. It also means that, once you have published material on the open Web, you have exercised and can no longer grant the rights to "first publication" (which is discussed further under "Pre-Prints" below).

Under "fair use," we can print materials we find on the Web for personal use without the author's permission, since we can assume that a work on the open Web is intended for distribution. Making multiple copies for distribution to others isn't acceptable, though, unless (a) a copyright notice for the work explicitly grants that permission or (b) we've asked for and received approval from the copyright owner.

Similarly, downloading a single copy of a file to a local disk for personal use is generally acceptable, but making that electronic copy available to others requires permission.

We can also use quotes from a work provided that (a) they are not longer than they need to be to support our original contributions, and (b) we attribute the source. Quoting a few sentences that do not appropriate the essence of a work is fine. Beyond that, seek the advice of LC/BPL.

If we want to make reference to a work in its entirety or to share it with others, then we should build a link to the remote document instead of copying that document into our own Web space. That way the owner retains control and can update the document and control access to it as he or she deems appropriate.

If we find an image out on the Web that we'd like to use on one of our own pages, we need to ask for the owner's permission if it isn't already explicitly granted. This is true regardless of whether we use the image "as is" or adapt it to the point that it's no longer recognizable.

I've asked permission to use material a number of times for both the IA Web space and my personal Web space outside the Laboratory. So far, the owners have been happy to grant that permission, provided that the use is non-commercial and the author/designer is appropriately credited.

Why Bother With a Copyright Notice?

The fact that materials are already covered by copyright does not mean that we don't need a copyright notice. A copyright notice still serves to establish who owns the rights, to announce what rights are granted to readers, and to gain procedural advantages should the copyright ever need to be legally enforced.

The Information Architecture (IA) Project has developed a "standard" Laboratory Web copyright notice in collaboration with LC/BPL (see Figure 1). This notice announces the U.C.-DOE contract, retains for the government the unencumbered right to use the materials without charge, and grants the public the right to make free use of the materials, providing the Laboratory is appropriately credited. The standard notice is available from the Laboratory home page (follow the link at the bottom of the page) and from the IA guideline IA-6306: Standard Laboratory Copyright Notice.

should not assert copyright. Similarly, if a work is co-authored by a Laboratory employee and a non-Laboratory collaborator, or if it is co-funded by a non-Laboratory source, then the copyright generally needs to be shared. Also, for scientific papers, U.C. grants the copyright to the author, which should be indicated in the copyright notice. For these and other special cases, work with LC/BPL to develop an appropriate notice.

What Is "Public Domain"?

When a work is in the "public domain," the public may use it freely, without charge, in any manner desired. This generally occurs when the copyright has expired. (Determining expiration can be tricky. Under current law, it occurs 50 years after an author's death or 75 years after publication for a work made for hire. Previous copyright law, however, still applies to U.S. works created before January 1, 1978, and other countries can have variations on the current U.S. law. Fortunately for us, the Web is young enough that the vast majority of it is nowhere near expiration, and we can leave most of the worrying about this point of law to future generations.)

A work can also pass into the public domain if the author specifically grants the rights to the public, but it doesn't occur without one of the above happening.

We frequently see a phrase such as "these works were found on the open Internet and are assumed to be in the public domain," which is incorrect. Yes, the sharing of information is a key function of the Web, but just because something is shared does not mean it is "public domain."

From a Web publishing perspective, unless we really intend to completely give up control over a work, we shouldn't use a phrase like "this is in the public domain" in a copyright notice. Instead, we're

Figure 1. Standard Laboratory Copyright Notice

The standard notice is suitable for most Web publications written by Laboratory employees or contractors, but it needs to be modified in certain cases. If we publish the work of a non-Laboratory collaborator, for example, the Laboratory

generally better off specifying which rights we are granting to the public (the right to copy without charge, etc.) and which rights we're retaining (government use, etc.).

The Problem with Pre-Prints

The basic problems with putting articles on the open Web prior to their publication in a professional journal are that (a) the Web posting constitutes a publication and (b) rights the journal may wish to purchase (or may already have purchased) can be lost. The counter-pressure, of course, is the need to publish quickly in order to share information, especially when it may be a number of months before the journal appears.

One strategy to balance these concerns is to restrict access to the pre-prints to a Laboratory audience (i.e., the audience that can be reached under the license retained by DOE and available to the Laboratory for Laboratory purposes). When we do this, we can then potentially say that the articles weren't really "published" (at least not to the public at large).

Another strategy is to explicitly state that the copyright is owned by the journal and that no rights are granted. (The easiest solution, of course, is to simply wait for the journal to come out, though that isn't always acceptable.)

Whatever approach is taken, we should work with the purchasing journal to develop a mutually acceptable solution, and let the journal know of any postings prior to the purchase.

Sources of Additional Information

The "Berne Convention for the Protection of Literary and Artistic Works" (Paris Text, 1971) is available on-line from the Cornell Law School Legal Information Institute at

http://www.law.cornell.edu/treaties/berne/overview.html

"Intellectual Property and the National Information Infrastructure," the report of the IITF working group on intellectual property rights, is available from the Villanova Center for Information Law and Policy at

http://www.law.vill.edu/chron/articles/nii/nii.htm

Additional links and materials related to the Information Architecture Project can be found in the IA Web space at http://www.lanl.gov/ (or look under "What's New" from the Laboratory internal home page).

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The New Opportunity Scheduler for Crays

Let's face it. Getting excited about something as mundane as a scheduling program is not easy. I mean, after all, it just schedules. It cannot write the code, collect the data, or publish the results. So when my team leader asked me to represent the ICN Consultants at a meeting featuring the new scheduler, I thought to myself, "Oh, no. This will be incredibly dull."

I was wrong.

The new Opportunity Scheduler is exciting! It takes a logical approach to amply dividing the available resources fairly and smoothly among all users. The interfaces are easy to run and reasonably intuitive. You can see at a glance exactly what is happening for any team or individual. I was very impressed.

Before I go any further, I would like to give credit where credit is due. The scheduler was written by Richard Klamann (CIC-7).

The scheduler basically divides each machine up into chunks called "banks." Each bank represents a type of process or a specific group. You can use the sysview command to view the current status of banks. For example:

```
rho% sysview

SYSVIEW:       Machine rho       (Mar 26 16:38:15)
        [kernel updates every 10 seconds]


                     CPUs        MegaWords
BANK     SHARES   ALLOC   USE   ALLOC    USE

Root              8.0     6.8   115.6    73.7
PROD     <10>     0.8     1.8    11.6    17.9
SYS      < 5>     0.4     0.0     5.8     1.5
INT      <85>     6.8     5.0    98.3    37.7
POOL     <25>     1.8     2.7    25.9    24.8
OTH      <50>     0.9     2.3    12.9    18.5
T        <50>     0.9     0.4    12.9     6.3
X        <15>     1.1     1.1    15.5     9.0
DNA      <50>     3.6     0.0    51.7     2.7
*CIC     < 5>     0.4     1.1     5.2     1.3
```

This view will update itself every 10 seconds until you enter a "q". Notice there are three major banks: PRODuction, SYStem, and INTeractive. SHARES represents the percent of the machine (or subbank) currently allocated. In the example above, 10% of the machine is allocated for PROD jobs, 5% for system tasks, and 85% is for interactive jobs. At night when most of us go home, the PROD shares rise considerably.

In the INTeractive banks we see a similar picture. We notice that DNA users have 50% of the INT bank. Likewise, users from T Division get 50% of the general POOL bank (which in turn gets 25% of the INT bank). Notice that the CIC bank is starred (*). The sysview utility knows I'm in CIC so it highlighted my bank for me.

Machine rho has 8 CPUs. The ALLOC column shows how many of those CPUs are currently allocated for each bank. Notice that T Division is allocated 0.9 CPUs and CIC is allocated 0.4 CPUs. You can quickly see that T Division is only using 0.4 CPUs (in the last 10 seconds). The rest of that time is not needed. So instead of wasting the CPU cycles, CIC has the opportunity of using them instead. That is why the CIC usage is 1.1 CPUs.

This feature is what makes the opportunity scheduler such a nice tool. A bank can easily get more than it's allocated (whether it's a service like PROD or an actual team like X Division). Banks have the opportunity to use CPU cycles that would otherwise go to waste. In our example, CIC has the opportunity to use cycles not being used by other banks. So does PROD. Though a few minutes or even seconds later, this might change. Someone in T Division might start up a big job while CIC might go to lunch. T Division would then get the cycles not being used by CIC.

So what about your bank? What is happening there? The bankview command shows you a quick picture:

```
rho% bankview

    BANKVIEW:  Machine rho   (Mar 26 16:39:40)
        [sampling interval:  4 seconds]


            ========================
            | Resource Bank: CIC   |
            ========================


        ALLOC   USE           ALLOC    USE
CPUs:   0.4     1.0   MWords:  5.2      2.2

User     PID    @   CPU  NI   Minutes MWords   Command
u123456  22193  C  100%  30    41.3    0.7     cyltranj
dale     28476  C    1%  30     0.0    0.9     bankview
```

As is the case with sysview, this screen will automatically update. The command automatically shows you your default bank. We can see that only two users in CIC are currently using CPU time during this 4 second cycle. We see user

monikers, PIDs, the status of jobs (both jobs are currently CPU active as indicated by the C in the @ column), the percent of time the processes accessed the CPU during the query cycle, the "nice" values, how many minutes the processes have been alive, the megawords used, and the names of processes. I like to think of bankview as an updating inquiry.

Let's take a look at another bank. You can do this by asking for a specific bank or even someone's moniker.

```
rho% bankview dna

  BANKVIEW:     Machine rho      (Apr 12 10:12:58)
        [sampling interval:  4 seconds]


               ======================
               | Resource Bank: DNA  |
               ======================


          ALLOC  USE                ALLOC    USE
CPUs:      3.6   2.5     MWords:     51.7    31.9

User    PID    @ CPU   NI Minutes MWords   Command
u6aaaaa 55018 S 47%   34    837.0    2.1   sharc.x
u6bbbbb 75770 C 79%   34    142.7   11.1   xomega
u6ccccc 13145 C 98%   30      1.5    6.3   sharc.x
u6ddddd 10312 S 24%   30      0.4    0.3   SURFACE
u6eeeee 75218 S  0%   30      0.1    0.4   xterm
u6fffff 13438 S  1%   34      0.0    6.7   xgrid
u6eeeee 13472 S  0%   30      0.0    0.1   vi
u6aaaaa 14399 S  1%   34      0.0    0.1   cfs
```

Here we see the DNA bank. Most processes are sleeping. Some users have more than one job running. DNA is allocated 3.6 CPUs but is only using 2.5 of them. The users are being kind and using reasonable nice values. It is important to point out that if a user lowers her nice value, it will only affect her performance when compared to other users who share the same bank. Hence, users cannot wrest more of the machine away from another bank by setting mean nice values; they can only prioritize work within their own bank.

All in all, we think you will like the new opportunity scheduler. As you can see it does a good job distributing the load among CPUs and teams. The user can quickly see exactly what is happening on the machine and in her bank. There are man pages for both sysview and bankview. Users can also read the news article, /usr/news/opp_sched, located on all of the machines running the scheduler. If you have any questions about the scheduler, please call the ICN Consulting Office at 7-5745 option 3 or e-mail us at consult@lanl.gov.

The opportunity scheduler is currently active in the Open network on machines rho and gamma and in the Secure network on sigma and zeta.

Dale Hugo Leschnitzer
ICN Consulting Office
Customer Service Group (CIC-6)
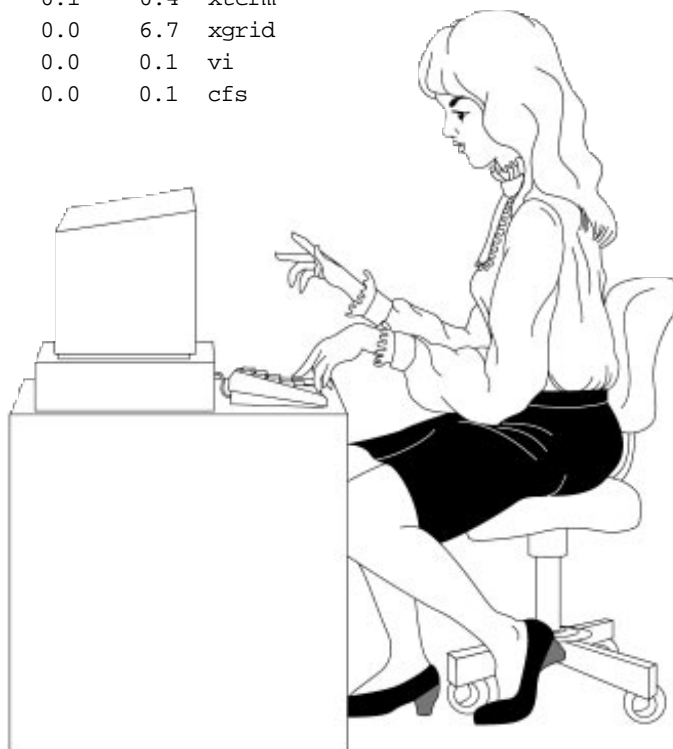
How to Get Unattached to E-mail Attachments

The one thing you can say about e-mail attachments is that if you send an attachment to the same type of computer as your own and both computers use the same e-mail program, you have a decent chance of getting the attachment intact. Beyond that, different platforms, e-mail programs, gateways, and decoding methods can make it questionable as to whether the person getting your attachment will ever be able to read it. This article will give you some suggestions and tips on how to decode those mystery attachments.

The PC has it easier than the Mac in that the type of file is determined by the file's three letter suffix. But problems can quickly arise when PCs get attachments from Macs and UNIX computers. This month's article will focus mainly on the Mac's problems with attachments; next month we'll look at the PC.

Some General Pointers

If you send a word processing document without graphics and don't care about the formatting, you should copy the text and paste it into the body of the e-mail message. (Sending no attachments is the best way to send attachments.)

If you send from a Mac or UNIX computer to a PC, remember that PC file names are traditionally limited to "8.3" characters; that is, eight digits before the dot and three after. Also, don't use spaces or special characters, although dash (-) and underscore (_) are acceptable.

When sending from a Mac to a PC (or vice versa) remember that you can do a "Save As" and, in many cases, save the document in the other platform's format. These translators are not always installed by default, however, as is the case with Microsoft Word, so you may need to do a custom install to get the translators. (You can also download additional translators from Microsoft via their Web page (www.microsoft.com) located in the support section. Microsoft does not offer Mac translators for the later versions of Word Perfect files. But, you can buy MacLink Plus from DataViz for these translators.)

Compression, Data, Resources, and Encoding

Most files have a good deal of extra "space" in them. To save transmission time, files are often compressed. The main compression/decompression utility used on the Mac is StuffIt (and DropStuff) and its counter-part, StuffIt Expander. (StuffIt Expander is so useful, it's a good idea to have an alias of it on your desktop. It is available via anonymous ftp from ftp.lanl.gov in binary form in the /pub/mac/utils directory. You can also call the Mac techs at 7-HELP and have them e-mail it to you.) Compressed StuffIt files usually end with a

".sit" suffix. If the stuffed files have the decoder application built in, they usually end in ".sea" for self-extracting-archive.

Macintosh files are actually two files in one. Every Mac file (usually) has both a data fork (same as a PC file) and a resource fork, which contains icon and other information. Most attachments are also binary files (as opposed to text files which could easily go in the body of the e-mail). Binary files and especially Mac binary files present problems when e-mailed, so they are encoded into a 7-bit "text" format, such as the BinHex format.

Sometimes an attachment arrives without the resource fork. When this happens the file will not have its appropriate icon (such as the Microsoft Word icon with the blue "W") and will appear as a default icon (See Figure 1.). Also, when you double-click the icon, it will not launch the right application. (System 7.5 comes with a Control Panel, Macintosh Easy Open, which can automatically launch many files like these when they are double-clicked.) However, you can open the appropriate application and do a File-Open within that application to read the file. (That is if you know the appropriate application and the file otherwise arrived intact.)

Figure 1. The Default Document Icon

When sent, attachments are included along with the body of the e-mail in one piece. A header line (comprised mostly of equal signs) is used to separate the body from the attachment. However, the attachment does not always get detached when it arrives and may still be included in the body of the message (and look like garbage). If this happens, you need to save the e-mail as a text document and decode it manually. If this is the case, there can be up to three steps to go through to decode an attachment:

1. The file needs to be decoded back into binary, using BinHex, UUdecode, or Base64/MIME. (This first step is usually automatic.)

2. The file may then need to be uncompressed (which on the Mac usually means dragging the file on top of StuffIt Expander).

3. The file may be in the wrong application format (Word for Windows 2.0 format, for instance) and will need to be converted to a native Mac format.

If you have the proper converters in an application, you can do a File-Open from within that application and it will convert the file for you into an untitled document. But, remember, just because you can decode and decompress a file, does not mean you have the proper application to launch that file. If you have a PowerPoint file, for instance, you're out of luck unless you have PowerPoint on your Mac. You will need to install PowerPoint or put the file on a floppy and move it to another computer that has PowerPoint. (Using Adobe Acrobat to create pdf files is a way around this problem and pdf files are "tri-platform" as well.)

Encoding Methods
When learning how to deal with troublesome attachments, it's useful to take a closer look at the main types of e-mail decoding used on a Mac. By the way, a great Web site for finding out what decoder to use for what type of file, complete with links to obtain the decoders, is located at

http://www.matisse.net/files/formats.html

Another good site for downloading conversion utilities is

http://www.mcad.edu/Guests/EricB/xplat.html

BinHex 4.0
BinHex is specifically used to encode Macintosh binary files, encoding both data and resource forks. A BinHex file is a 7-bit text file and usually ends with a ".hqx" suffix. You can tell it's a BinHex-encoded file because when you open it with a word processor, it starts with "(This file must be converted with BinHex 4.0)" (see Figure 2).

```
(This file must be converted with BinHex 4.0)

:#8*TEQKPH$3Z-!""8&"-3Nj)85!!N!FE)CIb!*!%!3
&3H983e*$+&"$+5a"-!!8(8cT68p@4H4$8NS33
36%*15&%K!!N!%`!N!C"8&"-3Nj)85%!!#3!6!#3
```

Figure 2. The Start of a BinHex Encoded Attachment

A BinHex file should decode when dragged on top of StuffIt Expander. Eudora (both Mac and PC) can decode BinHex. Lotus Notes cannot. If you are sending an attachment to a PC user who does not use Eudora, you should select

AppleDouble instead of BinHex as the encoding method. This conforms to the MIME standard (see below).

UUencode and UUdecode
This type of encoding is used more on the UNIX side of the house. However, Microsoft Mail, cc-Mail, and Word Perfect Office used UUencode until very recently. They now use MIME. A UUencoded file again is a text (or ASCII) file converted from a binary file and starts with "begin". In Figure 3, 700 is the UNIX permission of the file and sample.doc is the encoded file's name. A UUencoded file ends with (none other than) "end".

```
begin 700 sample.doc
M<VL@zfeShfiEyvX@<FuAybaI;BaYywsi
M```cdqI<VMc;WaYhcpN1G`b```puapsfq

(A lot more garbage)

M?^nbDg_C@Ha_XXjp?^nb@g_C@Ia_XXj`?
end
```

Figure 3. The Start of a UUencoded Attachment

The commercial version of Eudora (versions 2.xx) can decode UUencoded files. The freeware versions of Eudora (versions 1.xx) cannot, nor can Lotus Notes. StuffIt Expander can usually decode UUencoded files (again, when first manually saved to a file), but not always. Sometimes, you need a specific Mac UUdecoder utility (such as uuUndo). A selection of UUdecode utilities for the Mac can be found at

http://www.uni-frankfurt.de/~fp/uudeview/MacDecoder.html

MIME
MIME (Multipurpose Internet Mail Extensions) is the Internet standard for encoding e-mail attachments. MIME uses the Base64 method of encoding for binary attachments. Base64 is rather mysterious. Since Eudora and especially Lotus Notes (as well as most e-mail packages) can decode MIME attachments, you usually never see it in its encoded format. Every now and then you may get a look at it in the body of a message, however, if it did not detach. MIME/Base64 encoding starts with Content-Type: application/applefile (followed by 3 other lines that start with "Content" and then a bunch of lines that look like garbage).

When you send attachments to e-mail software other than Eudora, the best encoding method is to select AppleDouble; that is, if you want to be MIME compliant. This would apply when sending to Lotus Notes, for example. (But when sending to Eudora on a Mac or PC, you could keep BinHex, if you want.) AppleDouble will send two separate text files—one is the data fork and the other is the resource fork. The resource fork file may end in .rsrc (or start with a % in Lotus Notes) and can be ignored by the PC user.

You can manually decode a Base64 encoded file (you may never need to, though) with the Mpack decode utility. Mpack/munpack is available via anonymous FTP in the ftp.andrew.cmu.edu:pub/mpack/ file.

QP (Quoted Printable)

Lastly, it should be mentioned that there is also the QP (Quoted Printable) method of encoding which is used to encode 8-bit text (a full 256 character set) into 7-bit text so that it can be sent with SMTP (Simple Mail Transport Protocol) over the Internet. This is the method used to encode the body of the e-mail message. Again, this encoding is usually transparent, but should at least be mentioned.

A Procedure for Decoding Mac E-mail Attachments

The following is a game plan for dealing with wayward attachments on the Mac. I'm sure it is incomplete, but it is based on experiences I have had with trying to decode stubborn attachments. It is applicable to both Eudora and Lotus Notes (as well as other e-mail packages).

Step 1. Did the attachment detach from the e-mail message (and is saved as a file on your Mac) or is it still in the body of the message (and looks like gibberish)?

If it detached, go to step 2. If it did not detach and you're using Eudora, do a File-Save As and then drag the saved text file on top of StuffIt Expander. If it did not detach and you're using Lotus Notes, do a File-Export..., select ASCII text (the default), give the file a name, click Save, click OK, and then drag the saved text file on top of StuffIt Expander.

If the attachment decodes, go to step 2. If not, open the e-mail file with a word processor. (If it is less than 32 KB in size, it will open with SimpleText when double-clicked. Otherwise, drag the file onto the Microsoft Word alias icon on your desktop or do a File-Open in your favorite word processor.) Now delete the text in the file up to the point where the encoded attachment begins. If the attachment was encoded with BinHex, it will start with "(This file must be converted...)";

with UUdecode, it will start with "begin..."; or with Base64/MINE, it will start with "Content-Type:".

Then save the file as a text file. Drag that file on top of StuffIt Expander again. If it still does not decode, try a UUdecoder (see above) if the file is UUencoded or if the file is Base64 encoded try Mpack. If the file is BinHexed and StuffIt Expander did not decode it, you might try a specific BinHex decoder (like BinHex 4.0). If still no luck, you better call or e-mail the person who sent you the e-mail and have him or her send it to you again, send it to someone you work with who uses a different e-mail package, or call the folks at 7-HELP.

Step 2. Does it have an icon and will it launch when double-clicked?

If yes, then you're done! If not, then you may need to drag the file on top of StuffIt Expander, especially if the file ends in ".sit" (because the file may need to be decompressed or "unstuffed" as well). If you know what type of file it is supposed to be (for example, you know it's a word processing file) then drag the file on top of your word processing application's icon or open your word processor and do a File-Open. (If it is a spreadsheet file, then open it in Excel, etc. Macintosh Easy Open can also help here.) If you still have no luck, go to step 3.

Step 3. When you get to this step, you may have gotten a corrupted attachment or the attachment may have decoded OK, but it is a file for which you do not have the corresponding application. In which case you need to find out what application you need.

Microsoft Word allows you to open any file on your Mac. Do a File-Open and then at the bottom of the File-Open dialog box, select "All Files" instead of "Readable Files" next to the "List Files of Type:" selection. The file may contain useful text (along with a lot of "garbage"). You can, however, edit out the garbage and extract the useful text from the file. If the file is from an obscure application, you might be able to see a reference to the name of the application within the file.

If you see "%!PS-Adobe-3.0" as the first line of the file, it is a postscript file. You can print the file using Apple's LaserWriter Utility or a freeware program called Drop•PS, which is available at

http://skye.gsfc.nasa.gov/transfer_documents.html#dropps

(With Drop•PS, remember to select File, Preferences, and then click on the Set button to select your printer.)

If the file is a PowerPoint file, it will really look like garbage in a word processor and it will have no indication of file type. You might have gotten a PowerPoint 7 (Windows 95) file from a PC, however, which cannot be read by PowerPoint 4 on the Mac without conversion. Microsoft makes a translator for this. It is available on their Web site in the Support section. Enter PowerPoint for Mac as the product, click on Go!, and then go to the Free Software section and select: PPT '95 Translators for Mac PowerPoint 4.0.

In Conclusion

Receiving e-mail attachments can be one of the most frustrating things you will have to do on a computer. Unfortunately, it's a complicated world out there and sometimes e-mails go through all kinds of contortions before they finally end up in your e-mail In box. Again, if you are having trouble and need help with attachments, you can always call the folks at the 7-HELP (7-4357) support line.

The Lab's Information Architecture (IA) project (http://www.lanl.gov/projects/ia/) is looking at the problem of e-mail attachments. They have formed the IA E-mail Subject Area Team and they are about to release an RFC (Request for Comment) on the issue of e-mail standards. You should look at

http://w3.lanl.gov/projects/ia-lanl/areas/email/e-results.htm

for an impressive collection of information about various e-mail packages, including what types of attachment encoding/decoding they support.

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Desktop Group (CIC-2)

Vendor Computer Training

The Customer Service Group (CIC-6) supports vendor training in technical computing areas such as programming languages, system administration, networking, and World Wide Web development tools. The support provided by CIC-6 can be as limited as providing the appropriate facilities for a specific group or as extensive as coordinating training functions such as system administration, vendor acquisition, EDS administration, and class facilitation. The table below lists classes that are either currently being offered or are available on request. An expanded list of classes that are potentially available can be viewed on the Internet at

http://www.lanl.gov:8010/computer-information/ComputerTraining/Vendor.html

To request registration in any vendor course or for general assistance with vendor training, please contact the CIC-Division Vendor Training Coordinator at (505) 667-9399 or send e-mail to cic6-train@lanl.gov.

*Cost per student will vary depending on the total number of students enrolled in the class.

Course Title	Date	Time	Cost	Course Number
C Programming (Beginning)	Available on Request (5 days)		$1000-$1500*	3996
	Prerequisite(s): An understanding of and useful skills in a high-level programming language. A current ICN password is required. Topics Include: Introduction and Fundamentals; Basic Semantic Constructs - Getting; Base Level I/O With C; The Preprocess-Compilation Environment; Operators, Data Types, and Storage Classes; Control Flow Constructs; Conditional Constructs; Higher-Level Data Constructs in C; File I/O; UNIX Software Tools and POSIX System Calls.			
C Programming (Advanced)	Available on Request (5 days)		$1000-$1500*	4777
	Prerequisite(s): Useful skills and experience with the C Programming. A current ICN password is required. Topics Include: Data Structures, Algorithms, and OOP; An Advanced Clinic for C ; The ANSI C Recommendation X3.159; C and ANSI C War Stories; The Data Structure and the Assessment of Algorithms; Arrays; Structures; Unions; Stacks; Queues; Linked Lists; Recursive Functions; Binary Trees; Hashing; File Organizations Using the C Runtime Library; Standard Interprocess Communication Mechanisms; and An Introduction and Overview of AT&T's C++ 3.0.			
C++ for Experienced Programmers	Available on Request (5 days)		$1000-$1500*	9050
	Prerequisite(s): Excellent C Language programming skills. Topics Include: Major Differences and Additions to ANSI C; Building C++ Classes; Introduction to Text I/O with C++; Function Overloading; Single Inheritance; Virtual Functions; Multiple Inheritance; Operator Overloading; Creating, Initializing and Assigning Objects; Passing and Returning Objects; Templates, Parameterized Functions and Classes; C++Stream I/O with the File System; and C++ Course Summary.			
C++ Visual Windows Programming	Available on Request (5 days)		$1600-$2000*	
	Prerequisite(s): C programming experience. Topics Include: Introduction to Visual C++; A Working Introduction to Windows Programming; Concepts of Object-Oriented Programming; Classes; Memory Management; Scope and Access Control; Functions in C++; References and Argument Passing; Operators; Class Design, Single Inheritance; Polymorphism and Virtual Functions; Microsoft Foundation Class Library; Windows Event Handling; The Mouse; The Keyboard; Graphics Device Interface; Dialog Boxes; Windows Memory Management; Menus and Accelerators; Document/View Architecture; MDI and Multiple Views; and Visual C++ and NT.			

Course Title	Date	Time	Cost	Course Number
Common Object Request Broker Architecture (CORBA) Seminar	**Available on Request (3 days)**		**$1200-$1500***	**11563**

Prerequisite(s): Familiarity with client/server environment; distributed, integrated applications and object oriented technology tools. Topics include: CORBA - A strategic overview; The future of CORBA; Technical introduction to CORBA; ORB interoerability; Universal Networked Objects (UNOs); Internet Interoperability Protocol (IIOP); The Dynamic Skeleton Interface (DSI); and Bridges.

Java Programming (Basic)	**5/20-22/96**	**8:30-5:00**	**$1000-$1200***	**11686**

Prerequisite(s): Students must have the ability to create compiled programs using an advanced language (such as C or C++) and the knowledge to use basic Solaris commands and a World Wide Web browser (such as Mosaic or Netscape). Topics Include: Overview of the Java Programming Language, the HotJava WWW Browser, Applets, Audio and Animation, Importing Java Classes, Attaching Applets to HTML, Object-Oriented Programming Methodology, and Identification of Main Features of Java (including classes, servers, and security) .

Java Programming (Advanced)	**5/23-24/96**	**8:30-5:00**	**$800-$1000***	**11687**

Prerequisite(s): Completion of Beginning Java Programming course or equivalent knowledge. Topics Include: Developing Java Applications; Point-of-Sale Interfaces; Writing Java Code (demonstrating Java security, interactivity, graphics, audio, and animation); Java Class Packages and Subclasses; Memory Allocation and Garbage Collection Work; Interfaces, Exceptions, and Access Modifiers; Multithreading; and Extending Java.

Perl Programming	**Available on Request (1-3 days)**		**$400-$600* per day**	**8095/8093**

Topics Include: Describes the programming language that occupies the niche between shell and C Programming; syntax and semantics; data types; operators, control flow, regular expressions, and I/O facilities; the Perl debugger.

Perl Programming for the WWW	**Available on Request (2-3 days)**		**$400-$600* per day**	

Prerequisite(s): Programming skills with a light background in Perl and HTML. Topics Include: On-line Resources; Server Configuration; Permissions; Setuid Issues; Tainting; Safe Perl; Data Security; OO Programming; Web Modules; CGI Programs; CGI.pm; What Went Wrong?; CGI Template; Using Forms; Form Template; Input Widgets; Submit Widgets; Reset Widgets; Sample Form; Password Fields; Textareas; Hidden Fields; Checkboxes; Radio Boxes; Popup Menus; Lisboxes; Image Maps; Random Links; libwww Modules; Sending Mail; Shopping Carts; Database Access; and Advanced Topics.

SGI Network Administration	**6/17-21/96**	**8:30-5:00**	**$1700-$2200***	**11690**

Prerequisite(s): Completion of Silicon Graphics System Administration (Beginning) course or equivalent knowledge and experience. Topics Include: Networking Fundamentals; Network Configuration; Network Troubleshooting; Resource Management with Network; Information Services; Domain Management with Domain Name System; Electronic Mail with Sendmail; Remote File Sharing with Network File System & Automounter; Network Performance Monitoring; and Network Security.

Course Title	Date	Time	Cost	Course Number
SGI System Administration (Beginning)	**6/10-14/96**	**8:30-5:00**	**$1700-$2200***	**11688**

Prerequisite(s): Familiarity with using Silicon Graphics IRIS workstations and system administration procedures on other open system platforms. Topics Include: The Role of the System Administrator; Set Up and Configuration of an IRIS Workstation or Server; Supporting a Group of Silicon Graphics Users; System Security Maintenance; Backups and Recoveries; Configuration of Disk Drives; System Installation and Application Software; Attaching Terminals and Printers; Modifying the system Start Up and Shut Down Sequences; Automating Administrative Procedures; and Performing Basic System Troubleshooting.

SGI System Administration (Advanced)	**Available on Request (5 days)**		**$1700-$2200***	**11689**

Prerequisite(s): Completion of Silicon Graphics System Administration (Beginning) course or equivalent knowledge and experience. Topics Include: System Error Monitoring; Kernel Reconfiguration and Debugging; System Monitoring Tools; Process Management; MultiProcessor CPU Management; Memory Management and Tuning; Swap Management and Tuning; Disk Management and Tuning; XPS Filesystem Management; and System Security Concepts.

Solaris 2.X Network Administration	**5/13-17/96**	**8:30-5:00**	**$1300-$1700***	**8107**

Note: This course was previously called Solaris 2.X System Administration (Advanced). Prerequisite(s): Completion of Solaris 2.X System Administration (Beginning) class or equivalent knowledge and experience. Topics Include: Network Configuration; Remote Installation Procedures; Advanced Security Techniques; Troubleshooting Techniques; Customizing Sendmail; network Application Tools; and Name Service Configuration.

Solaris 2.X System Administration (Beginning)	**Available on Request (5 days)**		**$1300-$1700***	**7477**

Prerequisite(s): Familiarity with a UNIX workstation and UNIX commands. Topics Include: Custom Installation of Solaris 2.X Server; Add Peripheral Devices; Use Format Utility to Display Partition Information; Compress and Send Binary Files; Change System Run Levels; Add Startup Files for Additional Services; Add and Remove Software Packages; Configure Terminals and Modems; Administer Disks and File Systems; Discuss Basic Networking Concepts; Configure NFS to Support the Client-Server Environment; Use the Automounter; Add and Remove Diskless Clients; Back Up and Restore File Systems; Perform Basic Recovery and Troubleshooting Procedures; Configure and Administer the NIS+ Environment.

UNIX (Beginning)	**5/6-10/96**	**8:30-12:00**	**$738**	**5267**

Prerequisite(s): Familiarity with a UNIX workstation. Topics Include: Overview of the Workstation Environment; Getting Started; The UNIX File System; Manipulating Files; Customizing Your Environment; The C-Shell; Editing and Writing with vi; Using the Network; Discussing NFS and NIS; Using Basic System Status Commands; Startup and Shutdown Procedures; Using tar.

World Wide Web Development (Advanced)	**5/28-31/96**	**8:30-5:00**	**$1200-$1600***	**11526**

Prerequisite(s): Prior knowledge of basic HTML, WWW servers, and browsers. Topics Include: Introduction; Advanced HTML; Netscape Advanced Features; Perl Programming; Common Gateway Interface (CGI); Quality Assurance Testing; Image Maps; Filers and Data Conversion Programs; Security; Graphical Tools; Internet Resources; Registration on the WWW; Statistics; Database Integration; Searching; Graphics; and Extended Data Types.

Research Library Training

The LANL Research Library provides training for using its specialized databases. Training sessions begin and end at times indicated below. Classes are free but you must pre-register by calling the Research Desk at 7-5809 or sending e-mail to library@lanl.gov. Special classes and orientations can also be arranged.

Date	Time	Subject Matter
5-2-96	1:00-1:30 p.m.	Business Sources on the WWW
5-7-96	1:00-1:30 p.m.	SciSearch—At your Desktop!
5-9-96	1:00-1:30 p.m.	Energy Database—At your Desktop!
5-9-96	2:00-4:00 p.m.	Information Sources on the Internet via WWW
5-14-96	1:00-1:30 p.m..	MathSciNet—Mathematical Reviews on the Web
5-15-96	11:00-11:30 a.m.	MELVYL (U of CA Specialized Databases)
5-16-96	1:00-1:30 p.m.	Finding Addresses and Phone Numbers on the WWW
5-21-96	1:00-1:30 p.m.	Los Alamos Unclassified Publications
5-22-96	11:00 -11:30 a.m.	Automatic alerting/updates on MELVYL (basic searching knowledge required)
5-23-96	1:00-1:45 p.m.	New Employee Orientation/Research Library Overview (sign up not required)
5-23-96	2:00 - 4:00 p.m.	Information Sources on the Internet via WWW
5-30-96	1:00 - 1:30 p.m.	NTIS (US Govt-sponsored research)—At your desktop!

Lab-Wide Systems Training

The Customer Service Group (CIC-6) offers training for users of Laboratory information systems. The CIC-6 courses offer training for a variety of personnel including property administrators, group secretaries, training coordinators, budget analysts, group leaders, or anyone needing to access training records, property records, costs, employee information, travel, chemical inventories, etc. Refer to the table below and on the following pages for specific information about courses currently offered.

Course Registration

You must have a valid ICN password before taking any of the courses shown in the table. To register for a course, call CIC-6 Training, Development, and Coordination section at 667-9444. You will be sent a registration form to be completed and returned.

Course Title	Date	Time	Cost	Course Number
Administrative ToolKit	Scheduled on Request		$260	Course #11395
	A combination of the Directory Information, Signature Authority, TRIPS, and STORES system classes. The student will learn how to update directory information, assign signature authorities (purchase, SIGMA, etc.), submit travel requests, and purchase materials on-line. Reporting and printing for each system will also be covered.			
Automated Chemical Inventory System (ACIS):	Scheduled on Request		$260	Course #7480
	Participants receive hands-on instruction to update the status (end-user,location, quantity) of chemical containers. Participants will also learn to generate chemical inventory reports by chemical name, end-user, location, and organization.			
Budget Computing System (BUCS):	Scheduled on Request		$260	Course #3527
	This training is an introduction to the Budget Computing System (BUCS). Students practice generating "quick reports" and reports requiring parameter files. An introduction and demonstration of (no "hands-on") allocating procedures are given during the three-hour session.			
Employee Development System - Basic Training (EDS I):	5/1/96	8:30 – 12:00	$260	Course #5289
	The course provides hands-on instruction to request course enrollment, use the on-line course catalog, retrieve training transcripts, and assign EDS authorities. The student will learn to create courses, add students to the courses, and generate several training reports.			
Employee Development System - Training Plans (EDS II):	5/23/96	8:30 – 12:00	$260	Course #7155
	Participants receive hands-on instruction to create and maintain training plans, assign assignment codes, and generate training plan reports. Attendees must have prior training in the Employee Development System (course #5289).			
Eudora Electronic Mail	5/13/96	8:30 – 10:30	$130	Course #9762
	This class is a hands-on class that teaches the participant how to use Eudora software to create, send, receive, and edit electronic mail messages. In addition to these procedures, the participant will learn what related settings mean and how to configure the system to meet his or her individual needs.			

Course Title	Date	Time	Cost	Course Number
Data Warehouse/ Financial Reporting System	5/21/96	8:30 – 11:30	$260	Course #11050

Students will receive hands-on training to generate standard financial reports and make on-line queries from information in the "data warehouse," a collection of data from Laboratory budgeting, accounting, and time-keeping systems.

Facilities Project Information/Work Orders (FPI/WO):	Scheduled on Request		$260	Course #6996

Lab-wide users with a need to view the status of work orders and tickets in their organizations will receive hands-on instruction to request, print, and review work order, ticket and project summary information reports.

Financial Management Information System (FMIS):	Scheduled on Request		$260	Course #8338

Participants receive hands-on instruction to "explode" and "transfer" through the costs, allocations, and outstanding commitments screens. In addition, participants will create/review reports, access the Information Manager Utility for printing reports, and learn how to assign authorities in the system.

Hazardous Materials Transfer Tracking System for Nonradioactive Material (HMTTS/NRAM):	Scheduled on request		$260	Course # 7907

Participants receive hands-on instruction to create, update, and print the non-RAM Hazardous Materials Transfer Form (HMTF). Attendees must have completed "Completing the HMTF for Non-RAM," course #7512, sponsored by HS-8.

Hazardous Materials Transfer Tracking System for Radioactive Material (HMTTS/RAM):	Scheduled on Request		$260	Course #7993

Participants receive hands-on instruction to create, update, and print the Radioactive Materials Transfer Form (RMTF). Information about the non-RAM Hazardous Materials Transfer Form (HMTF) is included. This course is appropriate for people who fill out both RAM and Non-RAM forms. Attendees must have completed "Completing the RMTF," course #7517, sponsored by HS-8.

HTML Basics	5/9/96	8:30 – 12:00	$260	Course #11605

Students will gain a basic understanding of HTML (Hypertext Markup Language), the language for the World Wide Web. Topics covered will be commands and standards, creating and editing documents, and authoring programs.

Introduction to the Internet: Beginning Netscape	5/15/96	8:30 – 10:30	$130	Course #10961

Students gain basic understanding of the Internet and the World Wide Web and the use of Netscape as a browser to surf the Net. Topics covered are both Laboratory sites and open sites, along with practical uses of the Internet.

Course Title	Date	Time	Cost	Course Number
Key/Core System	**Scheduled on Request**		**$130**	**Course #10179**

Key custodians and alternate key custodians receive hands-on instruction to add, update, and delete key and padlock information, and view assignment information and request reports. Students will also learn how to request key inventory notifications. Students must be a key custodian or alternate and have an ICN password.

On-Line Forms	**5/15/96**	**10:30 – 12:00**	**$130**	**Course #9756**

Participants will learn to use Netscape software to access Lab-wide information and forms. Using Jetform Filler software, participants will access, complete, and print forms such as the "ICN Validation Request," "Visitor Request for Unclassified Visits to Security Areas," and "Request for Quotation."

Property Accounting, Inventory, and Reporting System (Advanced)	**Scheduled on request**		**$260**	**Course #9918**

This course will include a refresher of PAIRS, advanced techniques and tips, explanation of the notification system, and report capabilities. Swap Shop, Loan Out information, and support tables will be discussed. Participants should already have a basic understanding of and know how to use PAIRS.

Reporting with Infomaker	**5/7-8/96**	**8:30 – 5:00**	**$560**	**Course #11054**

Hands-on training to query data and develop ad hoc, or non-standard, reports from the LANL data warehouse using Infomaker software.

Secretarial/Contract Services (SE):	**Scheduled on request**		**$260**	**Course #7481**

This class provides hands-on instruction for creating secretarial requests for temporary services, entering time for technical and nontechnical contract employees, and creating reports using the Information Manager Utility. The students will also learn how to review notifications and approve attendance. A training database will be used for the class.

Time and Effort System	**Scheduled on request**		**$260**	**Course #11018**

The student will learn how to enter attendance, amend attendance, approve attendance, and submit exception and approval reports. Time codes and associated policies will also be discussed. In addition, the student will learn how to use the Information Manager utility to view and print reports.

Los Alamos
National Laboratory

INTEGRATED COMPUTING NETWORK
(ICN) VALIDATION REQUEST

To access ICN Computing resources, please complete all parts
of this form that apply to you, including "Special Requirements."

If you have **questions**:   Call: (505) 665-1805
                               E-mail: validate@lani.gov

Mail your completed application to:
ICN Password Office   (PWO)
Mail Stop: B271
Los Alamos National Laboratory
Los Alamos, NM 87545

All Laboratory computers, computing systems, and their associated communication systems are for official
business only. By completing this request, users agree not to misuse the ICN. The Laboratory has the
responsibility and authority to perodically audit user files.

Owner Information

Z-Number (if you have one)	PWO Use Only	Name (last, first, middle initial)	
LANL Group	LANL Mail Stop	Citizenship (Foreign National see "Special Requirements-Foreign National")	
Phone Number		Cost Center	Program Code

Check LANL affiliation:

☐ LANL employee

☐ Contractor _____
   (specify contract company)

☐ Consultant, VSM, associate

☐ External user_____
             (specify employer)

☐ Other (specify)_____

Send password / smartcard to:

☐ Mail Stop   or   ☐ Mail to address indicated below

Name / Organization

Address

City, State, Zip Code

Access   Check access method and needed partitions.

Access method: ☐ ICN Password   ☐ Smartcard   ☐ Both

☐ **Open** partition (e.g., email systems, open machines)

☐ **Administrative** partition (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])
   If you are not a Q-cleared LANL employee, see required steps in section "Special Requirements-Administrative
   Partition," unless you already have Administrative access with an ICN password.

☐ **Secure** partition (i.e., secure machines)
   Indicate level(s) of data to be processed:

   ☐ Unclassified

   ☐ Secret

I certify this person does require secure access:

_____   _____
Manager Signature   (Group Leader or above)   Date

NOTE: A Q-clearance is required. All classified computing must be performed within the Secure environment.

PWO Use Only

New ☐ Change ☐	Clearance Status	Processed	Lv	Smartcard Serial #
Comments:				

Form 1646 (1/95)   Supersedes previous versions (rev. 10/20).   Continue ➤

Special Requirements

Administrative Partition

(U.S. Citizens Only)	Lab-Wide Systems (e.g., IA [BUCS, Stores, Travel], IB [EIS, FMIS, PAIRS])
☐ Under 18 years of age	If you need to access Administrative systems, your group leader must provide a memo accepting responsibility for your actions and justifying your need for access. This memo is to accompany all forms taken to the security briefing (see "Contractor or Non-Q-Cleared") section below. You may not access the Secure Partition.
☐ Contractor or Non-Cleared	Phone (505) 667-9444 to obtain Access Authorization packet. Phone (505) 667-9153 to schedule a security briefing. Bring all forms including this ICN Validation Request to the security briefing for approval.

Security Briefing Approval Signature	Date

☐ Foreign National

Attach a copy of Form 982 (REQUEST FOR UNCLASSIFIED VISIT OR ASSIGNMENT BY A FOREIGN NATIONAL) with all approval signatures. Be sure Box #11 of Form 982 is completed. If you are not a visitor/assignee under a LANL/DOE approved Visit / Assignment Request, attach written justification from your host Division Director describing your need to access the ICN.

Authorization (required)

Print Manager Name (Group Leader or above)	Manager Z-Number	Group
Manager Signature (Group Leader or above)	Mail Stop	Date

If you are NOT a LANL employee, obtain your LANL contact's signature in addition to the contact's manager's signature.
NOTE: LANL contacts are regular Laboratory employees. Contacts are responsible for obtaining annual re-authorizations, forwarding renewals, and notifying the ICN Password Office of changes in user or contact status.

Print LANL Contact Name	Contact Z-Number	Phone Number	Group
LANL Contact Signature		Mail Stop	Date

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Feedback

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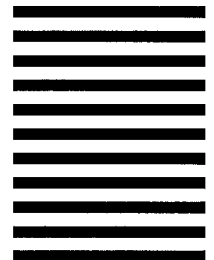
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——— Change my name/address as indicated below.

Name   Date

Address   Mail Stop

Group   Organization

City   State   Zip

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